AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method of controlling a photoresist layer above a substrate comprising:

forming, exposing, and developing the photoresist layer, forming at least one opening having a first dimension;

exposing the photoresist layer with the at least one opening to modify the photoresist layer characteristics after developing the photoresist layer; and

heating the photoresist layer with the at least one opening, after exposing the photoresist layer with the at least one opening, to achieve a thermal reflow of the photoresist layer with the at least one opening to modify the dimension of the at least one opening in the photoresist layer.

2. (Original) The method of claim 1 wherein exposing the photoresist layer with the at least one opening causes a mitigation of bulk expansion of the photoresist layer during reflow.

3. (Previously Presented) The method of claim 1 wherein exposing the photoresist layer with the at least one opening is selected from the group consisting of exposing to photons, exposing to electrons, and exposing to ions.

4. (Previously Presented) The method of claim 1 wherein heating the photoresist layer with the at least one opening to achieve a thermal reflow controls formation of a critical dimension that is less than a resolution of a lithographic tool set.

5. (Previously Presented) The method of claim 1 wherein heating the photoresist layer with the at least one opening to achieve a thermal reflow controls formation of a critical dimension that is less than a fundamental resolution of the photoresist layer.

6. (Previously Presented) The method of claim 1 wherein heating the photoresist layer to modify the dimension of the at least one opening in the photoresist layer decreases the dimension of the opening in the photoresist layer.

7. (Previously Presented) A method of controlling a photoresist layer above a substrate comprising:

forming, exposing, and developing the photoresist layer, forming at least one opening having a first dimension;

exposing the photoresist layer with the at least one opening to an electron beam causing a reduction of bulk expansion of the photoresist layer during a subsequent reflow; and

heating the photoresist layer with the at least one opening, after exposing the photoresist layer with the at least one opening, to achieve a thermal reflow of the photoresist layer to decrease the first dimension of the at least one opening in the photoresist layer.

8. (Previously Presented) The method of claim 7 wherein the electron beam is generated using an electron beam exposure device, implemented at 1.5K to 2.5K electron volts, for between 20 to 40 seconds.

9. (Previously Presented) The method of claim 7 wherein the photoresist layer with the at least one opening is exposed to the electron beam at 1.5K to 2.5K electron volts, with a density of about 2,000 micro-Coulombs per square centimeter, for between 20 to 40 seconds.

10. (Previously Presented) The method of claim 7 wherein exposing the photoresist layer with the at least one opening to the electron beam modifies at least one photoresist layer characteristic selected from the group consisting of a cross linking characteristic, a glass transition temperature, a decomposition temperature, and a molecular weight.

11. (Previously Presented) The process of claim 7 wherein heating controls the formation of a photoresist layer critical dimension.

12. (Previously Presented) The process of claim 7 wherein the heating is performed at 125 to 180 degrees Centigrade for 60 to 90 seconds.

13. (Previously Presented) A method of controlling a photoresist layer above a substrate comprising:

forming, exposing, and developing the photoresist layer, forming at least one opening having a first dimension;

exposing the photoresist layer with the at least one opening to a light source causing a reduction of bulk expansion of the photoresist layer during a subsequent reflow; and

heating the photoresist layer with the at least one opening, after exposing the photoresist layer with the at least one opening, to achieve a thermal reflow of the photoresist layer to decrease the first dimension of the at least one opening in the photoresist layer.

14. (Previously Presented) The method of claim 13 wherein the photoresist layer formed on the substrate is 193nm in thickness.

15. (Original) The method of claim 13 wherein the photoresist layer formed on the underlying substrate is 248nm in thickness.

16. (Previously Presented) The method of claim 13 wherein the light source comprises a flash-lamp.

17. (Previously Presented) The method of claim 16 wherein exposure conditions used to expose the photoresist layer with the at least one opening are kept below a solvation-switch deprotection threshold.

18. (Original) The method of claim 16 wherein the light source has a wavelength of 193nm.

19. (Original) The method of claim 18 wherein the light source subjects the photoresist layer with the at least one opening to approximately 4 to 6 mJoules per square centimeter for approximately 30 seconds.

20. (Original) The method of claim 16 wherein the light source has a wavelength of 248nm.

21. (Original) The method of claim 20 wherein the light source subjects the photoresist layer with the at least one opening to approximately 10mJoules per square centimeter for approximately 30 seconds.

22. (Previously Presented) The method of claim 13 wherein exposing the photoresist layer with the at least one opening to the light source modifies at least one photoresist layer characteristic selected from the group consisting of a cross linking characteristic, a glass transition temperature, a decomposition temperature, and a molecular weight.

23. (Previously Presented) The method of claim 13 wherein heating controls formation of a photoresist layer critical dimension.

24. (Previously Presented) The method of claim 13 wherein heating is performed at 125 to 180 degrees Centigrade for 60 to 90 seconds.

Claims 25-31 (Cancelled)

32. (New) The method of claim 1, further comprising etching the photoresist layer with the at least one opening to form the etched feature.

33. (New) A substrate having the etched feature formed by the method of claim 32.

34. (New) A substrate having the etched feature formed by the method of claim 32, wherein heating comprises heating to or beyond a glass transition temperature of the photoresist layer with the at least one opening.

35. (New) A substrate having the etched feature formed by the method of claim 32, wherein heating the photoresist layer with the at least one opening to achieve a thermal reflow controls formation of a critical dimension that is less than a resolution of a lithographic tool set.

36. (New) A substrate having the etched feature formed by the method of claim 32, wherein heating the photoresist layer with the at least one opening to achieve a thermal reflow controls formation of a critical dimension that is less than a fundamental resolution of the photoresist layer.

37. (New) A substrate having the etched feature formed by the method of claim 32, wherein exposing the photoresist layer with the at least one opening is selected from the group consisting of exposing to photons, exposing to electrons, and exposing to ions.